

Meeting Agenda

Climate Change – GMP Subcommittee

July 30, 2007

1:00 -5:00 PM

Fort Mason Officer's Club

- 1:00 – 1:30** Review GMP planning process
Review GMP issues (Climate Change)
Review subcommittee goals
Review meeting objectives

- 1:30 – 3:00** Review and discuss climate change policy, issues, and impacts
Review relevant GOGA plans (Global Warming Action Plan, EMS)
Discuss and document potential impacts and effects on park resources

- 3:00 – 5:00** Develop goals and guidelines for responding to and managing the effects of climate change

Overview of the GMP Planning Process

Foundation	<i>What's Most Important?</i> Resources, Experiences, Stories
	<u>Planning Steps:</u>
	<ul style="list-style-type: none"> • Affirm park purpose, significance, and special mandates • Identify fundamental and other important resources and values • Identify primary interpretive themes
	<i>What's Going on with What's Most Important?</i> Context, Conditions, Trends, Interests, Concerns
General Management Plan	<u>Planning Steps:</u>
	<ul style="list-style-type: none"> • Analyze fundamental and other important resources and values • Identify servicewide laws and policy • Identify agency and public interests and concerns
	<i>What Are the Future Possibilities for What's Most Important?</i> Management Alternatives
	<u>Planning Steps:</u>
	<ul style="list-style-type: none"> • Identify alternative concepts • Define desired conditions by management zone (including indicators and standards for user capacity) • Develop alternatives zoning maps • Define area-specific desired conditions for each alternative
	<i>What Is the Best Long-Term Management for What's Most Important?</i> The Preferred Set of Desired Resource Conditions, Experiences, Development
	<u>Planning Steps:</u>
	<ul style="list-style-type: none"> • Environmental impact analysis • Value analysis • Agency and public review of alternatives

GMP Climate Change Subcommittee Outline

GMP Issue Statement:

Climate Change

Issue Description:

The effects of climate change are predicted to include changes in temperature, precipitation, evaporation rate, local weather patterns, coastal vulnerability, plant communities, and sea level. Proactive planning and management actions will allow the parks to avoid, mitigate, adapt to, and interpret these changing conditions.

The plan will provide guidance for how the parks will assess and respond to the impacts of climate change on the parks' fundamental resources, including objectives for reducing the parks' production of carbon dioxide and interpreting climate change.

Subcommittee Goals:

- 1) Identify the potential impacts of climate change on park resources.
- 2) Develop goals and guidelines for responding to and managing the effects of climate change, including the role of education and interpretation.
- 3) Develop guidance for minimizing the park's carbon footprint.

Phase I: Monday, July 30, 1– 5:00 pm

Meeting Objectives: Identify the impacts of climate change on park resources; and develop guidance on how to respond to and manage the effects, including the role of education and interpretation.

Activity: Review the “state of the state” on climate change impacts and policy. Review previous GOGA work, including the global warming action plan and the EMS plan. Synthesize this information and produce a section on climate change that could be added to the GMP (potential impacts and effects, GOGA response and management philosophy/guidance for the future).

Tools: Park map; Protected Areas map; management zones table; summary of climate change issues and policy; and other resources/publications on climate change impacts, policy, etc; laptop and projector.

Phase II: Monday, Aug. 20 (conf. call)

Meeting Objectives: Finalize the guidance for responding to and managing the effects of climate change; and develop guidance for minimizing the park's carbon footprint.

Activity: TBD

Tools: TBD

Climate Change at GOGA

2/15/2007

1. NPS Policy

Management Policies 2006

4.7.2. Parks containing significant natural resources will gather and maintain baseline climatological data for reference.

Coastal Zone Management Act of 1972

(1) Because global warming may result in a substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence.

PWRO Directive: Energy Management and Water Conservation, The Green Energy Parks Program. (PW-047) <http://classicinside.nps.gov/documents/PW%2D047%2Edoc>

The white house website, section on climate change has related policy. Laura is a good contact for policy.

2. Global Warming Action Plan for GOGA

This draft plan written by Laura Castellini and Brett Bankie expands on the goals the park has in addressing climate change, how each office within the park can contribute, what the park is currently doing and what it plans to do. A vision statement for the park's climate change response is included, as well as a list of impacts that could occur in the park due to climate change. The park wants to implement this plan by summer 2007. The superintendent endorses this plan.

3. Environmental Management System 2007

An Environmental Management System (EMS) is a management tool to help organize and incorporate environmental considerations into day to day operations. As a comprehensive and long term approach to evaluating - and reducing - environmental impacts, EMS promotes continuous improvement. This became a requirement for parks in 2005.

Laura Castellini is working to rewrite the park's EMS with a global warming planning emphasis. The EMS drives the park's environmental management plan, which contains specific goals. Laura is also the contact for FY07 actions.

4. Other actions the park is taking

- Muir Woods and Presidio shuttles, Alcatraz electric shuttle,
 - green purchasing program, green ammunition program,
 - sustainability program/planning,
 - motion detectors for room lights,
 - recycling program,
 - transportation planning, using alternative fuel and high mileage cars,
 - park partner organic and sustainable food program,
 - curriculum-based education programs,
 - the Crissy Field Center program.
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- Adding climate change goals to division chief performance standards.

- Gathering a list of climate change experts.
- Creating a park task force on climate change, which will also include partners.
- The park is establishing a science advisory board including anyone of relevance along the coast. This could include state park officials, and other experts. This responsibility will shift to the Chief of Natural Resources.
- They are also proposing a global warming research center within the park, to be developed by an outside organization. It should be well-known and reputable and bring in funding and research on the park. It would interact with the media to accomplish goals that the park can not.
- The park plans to undertake training about climate change along the coast and world wide, beginning this year.

5. Potential impacts to the park due to climate change

The park lists many impacts climate change could cause, the following is a summary: coastal vulnerability (beaches, dunes, highways along beaches, and other sites lost or underwater, flooding), vegetation and wildlife affected, streams and seasonal pools affected, wildfires increase in number and severity

6. What the park can do about climate change

- a. 100+ best management practices
- b. Planning: (from PowerPoint presentation for facility managers)
 - i. Protecting facilities from increased fire danger
 - ii. Preparing for water shortages
 - iii. Preparing infrastructure for heat
 - iv. Preparing for extreme climate events, flooding, etc.
 - v. Smaller infrastructure footprint to minimize ecological stress
 - vi. Planning for sea level rise
 - vii. The Climate-Friendly Parks Initiative
(<http://www2.nature.nps.gov/air/features/climatechangeparks.cfm>)

7. How have other GMP's addressed climate change?

Martha Crusius – PWRO Oakland, Outdoor Recreation Planner 510-817-1447

- a. No completed GMPs with global warming emphasis, but some are in process.
 - i. Ebey's Landing – Affected Environment (PEPC)
 - ii. Ross Lake – Cliff is facilitator next week for alternatives workshop. They will address GW.
 - iii. San Juan Islands – No draft GMP yet, but they did a simulation on sea level rise. Identified resources threatened if it rises as expected.

Canadian parks are required to address climate change.

8. Who are the leaders in NPS on climate change? Have they produced any work that will help guide our efforts?

- a. WASO -
- b. Pacific West Region – ask Laura or Daphne Hatch. Only one person in interpretation in region. Lynne Picada?
- c. Park – Brett, Laura (environmental management team/plan), Craig is dealing with cc. strategic retreat due to water rise.
- d. Natural Resource Program Center –

9. PowerPoint Presentations by the Pacific West Region

a. Climate Change in the National Parks (July 2006)

- i. Temperatures are rising at an accelerated pace, we may be approaching critical point of no return. Effects of climate change: changed species habitats, increased wildfires, earlier snowpack melt, reduced glaciers, sea level rise, intense storms, ocean currents shift, and ocean dead zones.
- ii. It has been estimated that if we take concerted action now, it's possible to make as much as a six-fold difference in the warming that occurs over the next century. This can mean the difference between 2 degrees and 12 degrees – it can mean the difference in whether we reach the threshold that leads to melting of the Greenland ice sheet. Actions parks can take: reduce greenhouse gas emissions, plan for the future, build public understanding,

b. Managing national parks in the era of rapid global changes: the rules have changed and we must deal with it.

- i. In the face of rapid, pervasive global changes, our current approach to natural resources management is inadequate and can even get us in trouble.
 1. Climatic change and its effects are here, now.
 2. We have entered an era of unprecedented environmental conditions.
 3. We can no longer use the past as a target for restoration or management, nor depend on natural processes alone.
- ii. The future will be characterized by massive yet largely unpredictable changes, and some unpleasant surprises.
 1. Threshold responses will lead to surprises.
 2. Species' ranges will shift, and biotic communities will dissociate in space and time – making some parks unsuitable.
- iii. Actions parks can take: Educate, Lead by example, monitor, redefine goals, reduce current stresses, buy time, try different management approaches, practice triage (some will be ok without help, others need help, and others are doomed no matter what we do), and actively adapt.

10. Park Science.

In the last 5 years of issues, one article relates to climate change. “Response of Western Mountain Ecosystems to Climatic Variability and Change: the Western Mountain Initiative.” The article addresses the effect of climate change on fire, forest, hydrologic process—areas most affected.

11. Gary Mason – Nat Resource Specialist WASO, DC, 202-513-7204. Park service-wide climate change planning?

12. Events coming up:

Climate Friendly Parks Leadership Training Workshop, February 20-22, HAVO.

United Nations Climate Change report on February 2.

Other Sources:

Inside NPS > Regions > Pacific West Region > Natural Resources > Climate Change
<http://inside.nps.gov/regions/region.cfm?lv=3&rgn=223>

5. Climate Change

GMP Issue Statement:

The GMP will provide guidance for how the park will assess and respond to the impacts of climate change on the park's fundamental resources. The GMP will identify objectives for reducing the park's carbon footprint and in interpreting climate change.

Issue Description:

Global climate change will affect the park and its visitors during the planning horizon of this GMP. The effects are predicted to include changes in temperature, precipitation, evaporation rate, local weather patterns, coastal vulnerability, plant communities, and sea level. These effects would have direct implications to resource management and park operations and could influence the way visitors experience the park. Proactive planning and management actions will allow the park to avoid, mitigate, adapt to, and interpret these changing conditions. **(Include how climate change is effecting park resources, how park management contributes to the carbon footprint, and how NPS can be leaders in addressing issues and opportunities related to climate change.)**

Factors/Considerations:

- Sea-level rise can impair safety and function of low elevation or near shore infrastructure, including roads, trails, parking lots, sewers, drains, storage facilities and other structures
- Sea-level rise can impact low elevation or near shore natural and cultural resources (tidal areas, archaeological sites, historic structures)
- Changes in temperature can alter marine and coastal ecosystems
- Changes in precipitation and evaporation could result in invasion by exotic species
- Variations in climate and weather may alter visitation patterns and activities
- There could be increased pressure from local municipalities for utility relocation, etc.
- Climate change could affect availability of drinking water supplies
- GGNRA currently pursuing Global Warming Action Plan; establishing Science Advisory Board
- Climate change may impact the park's fundamental resources
- ALARM: Awareness, Leading by example, Active management, Research, Monitoring

Goal 5A:

Raise public awareness about Global Climate Change through a focus on interpretation and outreach efforts.

Possible Goals and Elements:

- Raise public awareness through meaningful and obvious messages (e.g., bright blue line around Alcatraz to demonstrate sea-level rise)
- Identify opportunities in the NPS interpretive services to promote the message of climate change (e.g., programs, brochures, messaging; recreation as a link to the science)
- Promote sustainability
- Demonstrate the park as the advocate/messenger of the topic in the NPS, allowing the NPS units to roll it out locally (expanding the network; national influence)
- Understand and promote the body of literature on the reality of global warming
- Fuel and feed the global understanding of the issue through education
- Educational initiatives will be explored that allow visitors and park management to take action and address the causes of global warming

Goal 5B:

Promote research and education on Global Climate Change via the park serving as a focal point for global warming research.

Possible Goals and Elements:

- Attract world-class global warming scientists to the park.
- Establish a global warming Advisory Board; global warming advisory center at visitor center, or separate institute;
- Provide support services at the park to attract university researchers; citizen science program; summits
- Focus on a range of resources (i.e., coastal ecosystem response, vegetation dynamics, terrestrial wildlife response, marine resources, etc.)
- Develop partnerships with universities, NGOs, other government agencies (this would be the minimum level)
- Participate in academic discussions, research, studies; integrate the park in these efforts and discussions
- Use recreation as a link to the science

Goal 5C:

Serve as a leader and a model for management responses to Global Climate Change by implementing sustainable policies and actions that minimize the park's green house gas outputs.

Possible Goals and Elements:

Policy Positions:

- “Managed retreat” (natural and cultural) vs. park actively protects, responds, and restores to maintain original conditions (armoring, relocation) vs. park accepts conditions
- Park prioritizes management responses/actions vs. park collaborates with public and region on establishing priorities and responses
- Devolve park boundaries to manage on an ecosystem level (in order to protect habitat for species)
- Goal of park as carbon neutral: continuous improvement
- Adopt actions as part of core values (changing of light bulbs and messaging)

Park Actions:

- Minimize the park's carbon footprint; emphasize sustainability
- Tell the story related to global warming
- Involve the public in stewardship, emphasizing the importance of individual responses and actions
- Apply strategies to the whole park, including Fort Point and Fort Baker which are outside of the GMP planning area
- Employ Best Practices to influence climate change
- Need to coordinate with others; consider partnerships, etc.
- Examine and prioritize infrastructure, facilities, and fundamental resources according to their degree of vulnerability to the effects of global warming
- Utilize collaborative approaches and adaptive management strategies based on and incorporating the best available science.

Elements Common to All Alternatives:

- Need scientific understanding of current (baseline) and predicted conditions
- Explore a special GMP zoning designation to capture the impacts and possible prescriptions for global warming responses
- Consider responses to global warming as a Guiding Principle in the GMP
- Need to consider impacts on partners and loss of income related to impacts on partnership facilities
- Long-term monitoring data is important for understanding the scale of changes
- Consider modifying asset management process to include GW as a factor